

SEQUENCE LISTING

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Skiadopoulos, Mario H.
Tao, Tao

<120> USE OF RECOMBINANT PARAINFLUENZA VIRUSES (PIVs) AS
VECTORS TO PROTECT AGAINST INFECTION AND DISEASE CAUSED
BY PIV AND OTHER HUMAN PATHOGENS

<130> 15280-404100US

<140>
<141>

<150> 60/170,195

<151> 1999-12-10

<160> 62

<170> PatentIn Ver. 2.1

<210> 1

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Flanking
sequence of Measles HA gene insert for N-P and P-M
junctions

<400> 1

cttaagaata tacaaataag aaaaacttag gattaaagag cg

42

<210> 2

<211> 36

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Flanking
sequence of Measles HA gene insert for N-P and P-M
junctions

<400> 2
gatccaaacaa agaaacgaca ccgaacaaac cttaag 36

<210> 3
<211> 101
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Flanking sequence of Measles HA gene insert for HN-L junction

<400> 3
aggcctaaaa gggaaatata aaaaacttag gagtaaagtt acgcaatcca actctactca 60
tataattgag gaaggaccca atagacaaat ccaaattcga g 101

<210> 4
<211> 79
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Flanking sequence of Measles HA gene insert for HN-L junction.

<400> 4
tcataattaa ccataatatg catcaatcta tctataatac aagtatatga taagtaatca 60
gcaatcagac aataggcct 79

<210> 5
<211> 64
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning site for GU insertion

<400> 5
aggaaaagg aaatataaaa aacttaggag taaagttacg cgtgttaact tcgaagagct 60
ccct 64

<210> 6
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning site
for NCR insertion

<400> 6
aggaaaaggg aacgcgtgtt aacttcgaag agctccct 38

<210> 7
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning site
for supernumerary gene insert between the P and M
genes of rHPIV3

<400> 7
ttaacaatat acaaataaga aaaacttagg attaaagagc catggcgtac gaagcttacg 60
cgt 63

<210> 8
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PIV3 gene end
(GE) sequence

<400> 8
aagtaagaaa aa 12

<210> 9
<211> 58
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cloning site
for RSV G and F gene inserts in B/H PIV3

<400> 9

aggattaaag aactttacccg aaaggtaagg ggaaagaaaat cctaagagct tagcgatg 58

<210> 10

<211> 11

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Flanking
sequence for RSV G gene insert in B/H PIV3

<400> 10

gcttagcgat g 11

<210> 11

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Flanking
sequence of RSV G and F gene inserts in B/H PIV3

<400> 11

aagctagcgc ttagc 15

<210> 12

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Flanking
sequence for RSV F gene insert in B/H PIV3

<400> 12

gcttagcaa aagctagcac aatg 24

<210> 13

<211> 83

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Forward primer
for PCR of measles HA gene insert for N-P and P-M
junctions

<400> 13

ttaatcttaa gaatatacaa ataagaaaaa cttaggatta aagagcgatg tcaccacaac 60
gagaccggat aaatgccttc tac 83

<210> 14

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Reverse primer
for PCR of measles HA gene insert for N-P and P-M
junctions

<400> 14

attatttgctt aagggtttgtt cggtgtcggt tctttgttgg atccttatctg cgattgggttc 60
catcttc 67

<210> 15

<211> 55

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Forward primer
for PCR of measles HA gene insert for HN-L
junction

<400> 15

gacaataggc ctaaaaggga aatataaaaa acttaggagt aaagttacgc aatcc 55

<210> 16

<211> 68

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
Reverse/Forward primer for PCR of measles HA gene
insert for HN-L junction

<400> 16
gtagaacgct tttatccggc ctcgttgcgg tgacatctcg aatttggatt tgtctattgg 60
gtccttcc 68

<210> 17
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for PCR of measles HA gene insert for HN-L
junction

<400> 17
ccatgttaatt gaatccccca acactagc 28

<210> 18
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
Forward/Reverse primer for PCR of measles HA gene
insert for HN-L junction

<400> 18
cggtataaacg cgttctacaa agataacc 28

<210> 19
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Upstream HPIV2
HN primer

<400> 19
gggccatgga agattacagc aat 23

<210> 20
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Downstream
HPIV2 HN primer

<400> 20
caataagctt aaagcattag ttccc 25

<210> 21
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Upstream HPIV2
HN primer

<400> 21
gcgatgggcc cgaggaagga cccaatagac a 31

<210> 22
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Downstream
HPIV2 HN primer

<400> 22
cccggttcct gattccccga gcacgcttg 30

<210> 23
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HPIV1 HN

primer

<400> 23
agtggctaat tgcattgcat ccacat

26

<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HPIV1 HN
primer

<400> 24
gccgtctgca tggtaatag caat

24

<210> 25
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligomer
insert for rule-of-six conformity

<400> 25
cgcgccaggc ctg

13

<210> 26
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligomer
insert for rule-of-six conformity

<400> 26
cgcgccgagg cctg

14

<210> 27
<211> 15
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligomer
insert for rule-of-six conformity

<400> 27

cgcgaggcct ccgcg

15

<210> 28

<211> 16

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligomer
insert for rule-of-six conformity

<400> 28

cgcgccgcgg aggcct

16

<210> 29

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligomer
insert for rule-of-six conformity

<400> 29

cgcgcccgcg gaggcct

17

<210> 30

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Forward primer
for RSV A G gene insert

<400> 30

aattcgctta gcgatgtcca aaaacaagga ccaacgcacc gc

42

<210> 31
<211> 92
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for RSV A G gene insert

<400> 31
aaaaagctaa gcgcgtaccc ttaatcctaa gttttctta cttttttac tactggcgtg 60
gtgtgttggg tggagatgaa ggttgtgatg gg 92

<210> 32
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Forward primer
for RSV A F gene insert

<400> 32
aaaggcctgc ttagcaaaaa gctagcacaa tggagttgct aatcctcaa gcaaatgcaa 60
ttacc 65

<210> 33
<211> 89
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for RSV A G gene insert

<400> 33
aaaagctaa cgctagcttc tttaatccta agttttctt acttttatta gttactaaat 60
gcaatattat ttataccact cagttgatc 89

<210> 34
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mutagenic
forward primer for modification of rHPIV3-1 cDNA

<400> 34
cggccgtgac gcgtctccgc accggtgtat taagccgaag caaa 44

<210> 35
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mutagenic
reverse primer for modification of rHPIV3-1 cDNA

<400> 35
cccgagcacg ctttgctcct aagttttta tatttcccgta acgtctattgtctgattgc 59

<210> 36
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Forward primer
for insertion of HPIV2 F ORF into rB/HPIV3 genome

<400> 36
aaaatatagc ggccgcaagt aagaaaaact taggattaaa ggcggatgga tcacctgcat 60
ccaatgatag tatgcatttt tgttatgtac actgg 95

<210> 37
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for insertion of HPIV2 F ORF into rB/HPIV3 genome

<400> 37
aaaatatagc ggccgctttt actaagatat cccatatatg tttccatgat tgttcttggaa 60
aaagacggca gg 72

<210> 38
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Forward primer
for insertion of HPIV2 HN ORF into rB/HPIV3 genome

<400> 38
ggaaaggcgc gccaaagtaa gaaaaactta ggattaaagg cgatggaaag attacagcaa 60
tctatctttt aaatcaattc c 81

<210> 39
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for insertion of HPIV2 HN ORF into rB/HPIV3 genome

<400> 39
ggaaaggcgc gccaaaatta aagcattagt tcccttaaaa atggatttat ttgg 54

<210> 40
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 F
(sense)

<400> 40
gtaccatgga tcacctgcat ccaat 25

<210> 41
<211> 31
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 F
(antisense)

<400> 41

tgtggatcct aagatatccc atatatgttt c

31

<210> 42

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 F
(sense)

<400> 42

atgcatcacc tgcattccaaat

20

<210> 43

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2
(antisense)

<400> 43

tagtgaataa agtgtcttgg ct

22

<210> 44

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 HN
(sense)

<400> 44

catgagataa ttcatcttga tgtt

24

<210> 45
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 HN (antisense)

<400> 45
agcttaaagc attagttccc ttaa 24

<210> 46
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV3 F (sense)

<400> 46
atcataatta ttttgataat gatcatta 28

<210> 47
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV3 F (antisense)

<400> 47
gttcagtgct tgttgtgtt 19

<210> 48
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV3 HN
(sense/antisense)

<400> 48
tcataattaa ccataatatg catcaat

27

<210> 49
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV3 HN
(sense)

<400> 49
gatggaaatta attagcacta tgat

24

<210> 50
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 F
(antisense)

<400> 50
atgcatcacc tgcataaat

20

<210> 51
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 F
(sense)

<400> 51
gatgatgtag gcaatcagc 19

<210> 52
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 HN (sense)

<400> 52
actgccacaa ttcttggc 18

<210> 53
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 HN (antisense)

<400> 53
ttaaaggcatt agttccctta aaaatg 26

<210> 54
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV3 F (sense)

<400> 54
aagtattaca gaattcaaaa gag 23

<210> 55
<211> 20

<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV3 HN (antisense)

<400> 55

cttatttagtg agcttgttgc

20

<210> 56

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 F (sense)

<400> 56

accgcagctg tagcaatagt

20

<210> 57

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 HN (antisense)

<400> 57

gattccatca cttaggtaaa t

21

<210> 58

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV3 M

(sense)

<400> 58

gatactatcc taatattatt gc

22

<210> 59

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV3 L
(antisense)

<400> 59

gctaattttg atagcacatt

20

<210> 60

<211> 15492

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Sequence of
pFLC.PIV32, 15492 bp in sense orientation

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accaaacaag agaagaaaact tgtctggaa tataaattta actttaaattt aacttaggat 60
taaagacatt gactagaagg tcaagaaaaag ggaactctat aatttcaaaaa atgttgagcc 120
tatttgatac atttaatgca cgtaggcaag aaaacataac aaaatcagcc ggtggagcta 180
tcattcctgg acagaaaaat actgtctcta tattcgccct tggaccgaca ataactgatg 240
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agaaagatct aaaacggcaa aagtatggag gatttgggtg taagacgaga gagatgatat 480
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